<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2. Overview</td>
<td>2</td>
</tr>
<tr>
<td>3. Course Objectives</td>
<td>2</td>
</tr>
<tr>
<td>4. Course Duration</td>
<td>2</td>
</tr>
<tr>
<td>5. Prerequisites</td>
<td>2</td>
</tr>
<tr>
<td>6. Hands-On Training</td>
<td>2</td>
</tr>
<tr>
<td>7. Course Content</td>
<td>3</td>
</tr>
<tr>
<td>7.1. Java Basics</td>
<td>3</td>
</tr>
<tr>
<td>7.2. Object-Oriented Concepts in Java</td>
<td>3</td>
</tr>
<tr>
<td>7.3. Miscellaneous issues</td>
<td>4</td>
</tr>
<tr>
<td>8. Method of Evaluation</td>
<td>4</td>
</tr>
</tbody>
</table>
1. **INTRODUCTION**

The document provides a description of a training course on Java programming.

2. **OVERVIEW**

Java's unique architecture enables programmers to develop a single application that can run across multiple platforms seamlessly and reliably. In this hands-on course, students gain extensive experience with Java and its object-oriented features. Students learn to create robust console and GUI applications and store and retrieve data from relational databases.

3. **COURSE OBJECTIVES**

Students will learn how to
- Write, compile and execute Java programs
- Build robust applications using Java's object-oriented features
- Create robust applications using Java class libraries
- Develop platform-independent GUIs
- Read and write data using Java streams
- Retrieve data from a relational database with JDBC

4. **COURSE DURATION**

64 hours:
- Lectures – 32 hours
- Practical classes – 16 hours
- Independent work – 16 hours

5. **PREREQUISITES**

The course level is basic thus it is suitable to an inexperienced listener. Knowledge and experience with Object-Oriented Design is helpful, but not required.

6. **HANDBS-ON TRAINING**

A series of hands-on exercises provides experience creating Java applications. Exercises include:
- Developing an object-oriented model
- Creating Java objects and calling their methods
- Structuring data with the Java collections API
- Creating portable GUIs with Swing components
- Adding event handling to GUIs
- Writing multithreaded applications and organizing synchronize access to shared resources
- Retrieving data from a relational database with JDBC
7. COURSE CONTENT

7.1. Java Basics

7.1.1 Lecture 1.

7.1.2 Lecture 2.

Practice №1.

7.1.3 Lecture 3.

7.1.4 Lecture 4.

Practice №2.

7.2. Object-Oriented Concepts in Java

7.2.1 Lecture 5.

7.2.2 Lecture 6.

Practice №3.

7.2.3 Lecture 7.

7.2.4 Lecture 8.

Practice №4.

7.2.5 Lecture 9.
7.2.6 Lecture 10.
Understanding maps. Iterating collections.

Practice №5.

7.3. Miscellaneous issues

7.3.1 Lecture 11.
Container objects. Container classes and container generic forms.

7.3.2 Lecture 12.
Error handling with exceptions. Basic exceptions. Catching an exception. Creating your own
exceptions. Performing cleanup with finally.

Practice №6.

7.3.3 Lecture 13.
Input and output in Java. The file class. readers & writers. Typical uses of I/O streams. File
reading & writing utilities. Object serialization.

7.3.4 Lecture 14.
Graphical user interfaces. Capturing an event. AWT and Swing classes.

Practice №7.

7.3.5 Lecture 15.
Basic threading: the Thread class. Creating, starting and stopping a thread. Sharing
resources. Cooperation between tasks. Deadlocks.

7.3.6 Lecture 16.
Java database connectivity (JDBS).

Practice №8.

8. METHOD OF EVALUATION

<table>
<thead>
<tr>
<th>Evaluation Item</th>
<th>The Number of Times</th>
<th>Evaluation Proportion</th>
<th>Remarks</th>
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<td>80% of the classes</td>
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<tr>
<td>midterm exam</td>
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<tr>
<td>final exam</td>
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<tr>
<td>final report</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>test</td>
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<td>discussion</td>
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<tr>
<td>homework</td>
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<tr>
<td>practice task</td>
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<td>30%</td>
<td>All the practice tasks should be completed</td>
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<tr>
<td>etc</td>
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